General

Guideline Title

ACR Appropriateness Criteria® hematospermia.

Bibliographic Source(s)

Hosseinzadeh K, Remer EM, Leyendecker JR, Eberhardt SC, Friedman B, Fulgham PF, Goldfarb S, Hartman MS, Lazarus E, Lockhart ME, Majd M, Oto A, Porter C, Sudakoff GS, Verma S, Expert Panel on Urologic Imaging. ACR Appropriateness CriteriaÂ® hematospermia. [online publication]. Reston (VA): American College of Radiology (ACR); 2012. 6 p. [54 references]

Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: Torigian DA, Ramchandani P, Casalino DD, Remer EM, Arellano RS, Baumgarten DA, Curry NS, Dighe M, Fulgham P, Israel GM, Leyendecker JR, Papanicolaou N, Prasad S, Expert Panel on Urologic Imaging. ACR Appropriateness Criteria® hematospermia. [online publication]. Reston (VA): American College of Radiology (ACR); 2010. 5 p.

Recommendations

Major Recommendations

ACR Appropriateness Criteria®

Clinical Condition: Hematospermia

Variant 1: Man <40 years of age, transient or episodic hematospermia, and no other symptoms or signs of disease.

Radiologic Procedure	Rating	Comments	RRL*
US pelvis (prostate) transrectal	3	Usage of US versus MRI depends on local preference and availability.	O
MRI pelvis without contrast	3	Usage of US versus MRI depends on local preference and availability. Endorectal coil (1.5 or 3.0 T) or phased-array coil (3.0 T).	O
MRI pelvis without and with contrast	3	Depending on signs and symptoms, contrast may be helpful.	O

Radiologic Procedure	Rating	Comments	RRL*
CT pelvis with contrast	1		
CT pelvis without contrast	1		
CT pelvis without and with contrast	1		
Vasovesical vesiculography	1	When associated with azoospermia	Varies
Arteriography pelvis	1		
Rating Scale: 1,2,3 Usually not appropriate; 4,5,6 May be appropriate; 7,8,9 Usually appropriate			*Relative Radiation Level

Note: Abbreviations used in the tables are listed at the end of the "Major Recommendations" field.

Variant 2: Man ≥40 years of age, persistent hematospermia or other associated symptoms or signs of disease.

Radiologic Procedure	Rating	Comments	RRL*
US pelvis (prostate) transrectal	8	Usage of US versus MRI depends on local preference and availability.	O
MRI pelvis without contrast	8	Usage of US versus MRI depends on local preference and availability. Endorectal coil (1.5 or 3.0 T) or phased-array coil (3 T).	O
MRI pelvis without and with contrast	8	Depending on signs and symptoms, contrast may be helpful. See statement regarding contrast in text under "Anticipated Exceptions."	O
CT pelvis with contrast	2		
Vasovesical vesiculography	2	When associated with azoospermia.	Varies
Arteriography pelvis	2		
CT pelvis without and with contrast	1	No added benefit beyond CT with contrast.	
CT pelvis without contrast	1		
Rating Scale: 1,2,3 Usually not appropriate; 4,5,6 May be appropriate; 7,8,9 Usually appropriate			*Relative Radiation

Radiologic Procedure	Rating	Comments	RRL*
Rating Scale: 1,2,3 Usually not appropriate; 4,5,6 May be appropriate; 7,8,9 Usually appropriate			*Relative Radiation Level

Note: Abbreviations used in the tables are listed at the end of the "Major Recommendations" field.

Summary of Literature Review

Introduction/Background

Hematospermia (HS) or hemospermia, the presence of blood in the ejaculate or semen, has been recognized for centuries. Although it is not uncommon to encounter HS in clinical practice, the exact prevalence and incidence are not known. Most men with HS are young (<40 years of age), and HS may occur either as a single episode or repeatedly over time. It is typically a cause of great anxiety to men, mainly due to the imagined possibility of underlying malignancy or venereal disease. HS may be associated with pathology in the prostate gland, seminal tract (seminal vesicles, vasa deferentia, and ejaculatory duct), urethra, urinary bladder, epididymis, or testes, with the most common causes reported to include prior prostatic biopsy, prostatic calculi, inflammatory or infectious conditions such as prostatitis or seminal vesiculitis, ductal obstruction, and prostatic cyst formation. The majority of cases of HS were thought to be idiopathic in nature; however as a result of improved imaging techniques, the number of cases labeled as idiopathic has decreased significantly, with one of the main sites of bleeding occurring in the seminal vesicles. Of specific etiologies, infectious conditions are the most common, accounting for approximately 40% of HS cases overall. An infective cause of the urogenital tract is the most common etiology in men <40 years of age.

One of the largest case series in the literature involved 200 men with HS, 75% of whom were ≥40 years of age. Of 174 who underwent evaluation with urinalysis, cystoscopy, and abdominal radiography, 63% had HS considered to be idiopathic in etiology. Of 150 who had follow-up for 5 to 23 years, 4% developed prostate carcinoma and 1% developed bladder carcinoma, but there did not appear to be a relationship between HS and the disease processes, showing that the majority of men with HS can be managed conservatively as there is a low risk of serious underlying pathology. However, in another study involving 26,126 men who underwent routine prostate cancer screening, only 0.5% had HS, but 13.7% who reported HS and had entered this screening study were diagnosed with prostate cancer. Moreover, the presence of HS was shown to be a significant predictor of prostate cancer diagnosis (odds ratio=1.73) after adjusting for age, serum prostate-specific antigen (PSA), and digital rectal examination results through a logistic regression model. Therefore, when a man ≥40 years of age presents with HS, screening for prostate carcinoma is recommended. Furthermore, when HS is persistent or associated with other symptoms or signs of disease, noninvasive imaging and other diagnostic testing are typically performed to exclude an underlying disease condition as described below.

Overview of Imaging Modalities

Transrectal Ultrasound (TRUS)

TRUS is a safe, inexpensive, and effective noninvasive radiation-free imaging technique often used as the primary screening or diagnostic modality in men with HS to evaluate the prostate gland and seminal tract. Patients are typically placed in left lateral decubitus position, and gray scale images are obtained with a 5.0-10 MHz TRUS transducer in axial and sagittal planes. Color and power Doppler images may also be acquired, particularly when prostate carcinoma is suspected and prostatic biopsy is contemplated. TRUS-guided aspiration or biopsy of the seminal vesicles or prostate gland may be performed to further elucidate the site of bleeding, to provide a definitive diagnosis if a lesion is detected, or to confirm the presence of ejaculatory duct obstruction.

Endorectal Coil Magnetic Resonance Imaging (MRI)

Endorectal coil MRI, with its excellent soft-tissue contrast, provides radiation-free multiplanar, high-spatial-resolution anatomic evaluation of the prostate gland and seminal tract. As opposed to TRUS, MRI is operator independent and can be performed when TRUS is unsatisfactory or nondiagnostic. Typically, sagittal localizer images are initially obtained to confirm optimal placement of the endorectal coil. Subsequently, small-field-of-view axial T1-weighted images and axial, sagittal, and coronal T2-weighted images are obtained for high-resolution evaluation of the prostate gland, seminal vesicles, ejaculatory ducts, and ampullary portions of the vasa deferentia, followed by large-field-of-view images to evaluate for pelvic lymphadenopathy and osseous abnormalities. The increasing availability of 3.0 T MRI, which offers a higher signal-to-noise ratio and improved spatial resolution, may preclude the use of an endorectal coil for evaluating the seminal tract.

Computed Tomography (CT)

CT is a noninvasive imaging modality that uses ionizing radiation to identify calcifications, gross soft-tissue masses, or cystic lesions of the prostate gland, seminal vesicles, or vasa deferentia. However, it is rarely used compared to TRUS or endorectal MRI in primary evaluation of HS, because its lack of soft-tissue contrast limits evaluation of small-caliber structures such as the ejaculatory ducts or vasa deferentia and its evaluation of the internal architecture of the seminal vesicles and prostate gland.

Vasovesical Vesiculography

Vasovesical vesiculography (or vasovesiculography) (VZV) is rarely performed today in the evaluation of HS, and is mainly reserved for men with azoospermia with normal spermatogenesis on testicular biopsy who are suspected to have aplasia or occlusion of the vasa deferentia and ejaculatory ducts. After local anesthesia is applied, a small incision is made in the scrotum, the vas deferens is exposed, and a 23-guage needle is inserted directly into its lumen. Three to five cc of water-soluble iodinated contrast material is injected through the needle, and a frontal radiograph of the pelvis is obtained. Sequential opacification of the vas deferens, ampulla of the vas, seminal vesicle, and ejaculatory duct occurs, followed by flow of contrast into the posterior urethra and urinary bladder, verifying patency of the ejaculatory duct and competence of the external urethral sphincter.

Pelvic Angiography

Pelvic angiography can be useful to evaluate for vascular causes of HS, and is mainly reserved for men with intractable HS with or without hematuria when clinical, laboratory, and noninvasive imaging evaluations have not revealed an etiology. If an arterial source of hemorrhage is identified, such as from the internal pudendal artery, transcatheter arterial embolization may be performed in the same session for therapeutic purposes.

Discussion of Imaging Modalities by Variant

Factors that determine the extent of investigation are patient age, duration of HS, and associated symptoms and signs. However, a confounding issue is that currently there are no consensus or society guidelines on the distinction between transient or episodic HS and persistent HS. The distinction has been based on either the number of ejaculates or a specific time period, with differing opinions. Ultimately the decision to pursue further investigation will be made by the referring physician, typically an urologist.

HS – Age <40, Transient or Episodic HS and No Other Symptoms or Signs of Disease

Imaging assessment is not generally recommended for this patient population as watchful waiting, reassurance, and routine clinical evaluation may suffice, given that HS is apt to be a benign and self-limited condition unassociated with a significant underlying disease process. The approach to any patient with HS begins with a detailed history and physical examination. Determination of the origin of bleeding within the ejaculate is key, as postcoital hemorrhage from the patient's sexual partner may sometimes be mistaken for HS. Laboratory testing includes visual analysis of the ejaculate for red discoloration, microbiological testing, semen analysis, urinalysis and urine culture, and assessment of serum coagulation, a serum chemistry panel, and a complete blood count.

HS – Age ≥40, Persistent HS, or Other Associated Symptoms or Signs of Disease

Noninvasive imaging techniques, predominantly TRUS and endorectal coil MRI, may be used in patients ≥40 years of age, with persistent HS or other associated symptoms or signs of disease. Imaging is also useful in evaluating the seminal tract in men in whom the history, physical examination, and laboratory examination fail to find a causative abnormality. All patients ≥40 years of age should be screened for prostate cancer by checking PSA level. While not addressed by the medical literature, TRUS or pelvis MRI may be performed to allay anxiety and provide reassurance that no significant pathology exists in patients with negative history and physical examination. Many investigators have reported that TRUS should be used as the first-line imaging tool in this patient population, and that endorectal coil MRI can be used as a second-line imaging tool when TRUS results are negative or indeterminate. It should be emphasized that MRI has no established role in screening for prostate cancer; the utility of MRI in this patient population is in demonstrating anatomic abnormalities in the prostate gland and ejaculatory tract that may be accounting for the HS.

Both TRUS and MRI are very sensitive for detecting a variety of abnormalities that may involve the prostate gland and seminal tract in the setting of HS, but endorectal coil MRI may be more sensitive in determining the site and cause of hemorrhage within the seminal tract and prostate. Endorectal MRI can accurately identify hemorrhage within the seminal tract by the expected signal characteristics on T1-weighted images. The multiplanar ability of MRI to accurately depict the structural changes in the prostate, seminal vesicles, ampulla of vas deferens, and ejaculatory duct has enabled the modality to be particularly useful in determining the organ of origin of midline or paramedian prostatic cysts and in determining optimal surgical management TRUS reportedly demonstrates abnormalities in 82% to 95% of men with HS. Abnormalities may include calcifications or calculi in the prostate, ejaculatory ducts, or seminal vesicles; cysts; dilation or other congenital abnormality of the ejaculatory ducts or seminal vesicles; benign prostatic hypertrophy, prostatitis, prostatic cysts; and Cowper's gland mass. However, it is important to consider that

some of these abnormalities can be found in asymptomatic patients, such as benign prostatic hyperplasia and prostatic calcifications which are age-related changes, and nonobstructing prostatic cysts. TRUS has shown utility in guiding transperineal aspiration of the seminal vesicles.

Calculi and calcifications in the prostate gland and seminal tract can be detected on CT as well as on TRUS and MRI. However, CT is rarely used as a first-line imaging modality to evaluate men with HS because of its suboptimal performance for evaluating the prostate gland and seminal tract compared to TRUS and MRI, and because it uses ionizing radiation.

VZV is rarely performed today in the evaluation of men with HS and is mainly reserved for men with azoospermia with normal spermatogenesis on testicular biopsy who are suspected to have aplasia or occlusion of the vasa deferentia and ejaculatory ducts.

Pelvic angiography has been reported sparsely in the literature to be useful for evaluating men with intractable HS with or without hematuria when clinical, laboratory, and noninvasive imaging evaluations have not revealed the etiology. If an arterial source of hemorrhage is identified, transcatheter arterial embolization may be performed during the same session as well.

Summary

- HS is an anxiety-provoking but otherwise generally benign and self-limited condition that is infrequently associated with significant underlying pathology, and is most often considered to be idiopathic in nature.
- Watchful waiting, reassurance, and routine clinical evaluation typically suffice in men <40 years of age with transient HS and no other symptoms or signs of disease. When a cause can be identified, infection of the urogenital tract is the most common etiology of HS in men <40 years of age.
- In men ≥40 years of age who have HS, screening for prostate carcinoma is advised.
- Noninvasive imaging techniques, predominantly TRUS and endorectal coil MRI, may be used in men ≥40 years of age with persistent HS or other associated symptoms or signs of disease. A wide variety of entities that may not necessarily be causative may be seen in association with HS at imaging.
- CT and VZV are rarely used for evaluating men with HS.
- Pelvic angiography may be useful to evaluate for vascular abnormalities in men with intractable HS when clinical, laboratory, and noninvasive imaging evaluations have not revealed an etiology.

Anticipated Exceptions

Nephrogenic systemic fibrosis (NSF) is a disorder with a scleroderma-like presentation and a spectrum of manifestations that can range from limited clinical sequelae to fatality. It appears to be related to both underlying severe renal dysfunction and the administration of gadolinium-based contrast agents. It has occurred primarily in patients on dialysis, rarely in patients with very limited glomerular filtration rate (GFR) (i.e., <30 mL/min/1.73 m^2), and almost never in other patients. There is growing literature regarding NSF. Although some controversy and lack of clarity remain, there is a consensus that it is advisable to avoid all gadolinium-based contrast agents in dialysis-dependent patients unless the possible benefits clearly outweigh the risk, and to limit the type and amount in patients with estimated GFR rates <30 mL/min/1.73 m^2. For more information, please see the American College of Radiology (ACR) Manual on Contrast Media (see the "Availability of Companion Documents" field).

Abbreviations

- CT, computed tomography
- MRI, magnetic resonance imaging
- US, ultrasound

Relative Radiation Level Designations

Relative Radiation Level*	Adult Effective Dose Estimate Range	Pediatric Effective Dose Estimate Range
O	0 mSv	0 mSv
☐	<0.1 mSv	<0.03 mSv
☐☐	0.1-1 mSv	0.03-0.3 mSv
☐☐☐	1-10 mSv	0.3-3 mSv
☐☐☐☐	10-30 mSv	3-10 mSv

Relative Radiation Level*	Adult Effective Dose Estimate Range	Pediatric Effective Dose Estimate Range
30-100 mSv	10-30 mSv	

*RRL assignments for some of the examinations cannot be made, because the actual patient doses in these procedures vary as a function of a number of factors (e.g., region of the body exposed to ionizing radiation, the imaging guidance that is used). The RRLs for these examinations are designated as "Varies."

Clinical Algorithm(s)

Algorithms were not developed from criteria guidelines.

Scope

Disease/Condition(s)

Hematospermia

Guideline Category

Diagnosis

Evaluation

Clinical Specialty

Family Practice

Internal Medicine

Radiology

Urology

Intended Users

Health Plans

Hospitals

Managed Care Organizations

Physicians

Utilization Management

Guideline Objective(s)

To evaluate the appropriateness of initial radiologic examinations for evaluation of hematospermia

Target Population

Patients with hematospermia

Interventions and Practices Considered

1. Ultrasound (US) pelvis (prostate) transrectal
2. Magnetic resonance imaging (MRI) pelvis
    - Without contrast
    - Without and with contrast
3. Computed tomography (CT) pelvis
    - With contrast
    - Without contrast
    - Without and with contrast
4. Vasovesical vesiculography
5. Arteriography pelvis

Major Outcomes Considered

Utility of radiologic examinations in evaluation of hematospermia

Methodology

Methods Used to Collect/Select the Evidence

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

Literature Search Procedure

The Medline literature search is based on keywords provided by the topic author. The two general classes of keywords are those related to the condition (e.g., ankle pain, fever) and those that describe the diagnostic or therapeutic intervention of interest (e.g., mammography, MRI).

The search terms and parameters are manipulated to produce the most relevant, current evidence to address the American College of Radiology Appropriateness Criteria (ACR AC) topic being reviewed or developed. Combining the clinical conditions and diagnostic modalities or therapeutic procedures narrows the search to be relevant to the topic. Exploding the term "diagnostic imaging" captures relevant results for diagnostic topics.

The following criteria/limits are used in the searches:

1. Articles that have abstracts available and are concerned with humans.
2. Restrict the search to the year prior to the last topic update or in some cases the author of the topic may specify which year range to use in the search. For new topics, the year range is restricted to the last 5 years unless the topic author provides other instructions.
3. May restrict the search to Adults only or Pediatrics only.
4. Articles consisting of only summaries or case reports are often excluded from final results.

The search strategy may be revised to improve the output as needed.

Number of Source Documents

The total number of source documents identified as the result of the literature search is not known.

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Strength of Evidence Key

Category 1 - The conclusions of the study are valid and strongly supported by study design, analysis, and results.

Category 2 - The conclusions of the study are likely valid, but study design does not permit certainty.

Category 3 - The conclusions of the study may be valid, but the evidence supporting the conclusions is inconclusive or equivocal.

Category 4 - The conclusions of the study may not be valid because the evidence may not be reliable given the study design or analysis.

Methods Used to Analyze the Evidence

Systematic Review with Evidence Tables

Description of the Methods Used to Analyze the Evidence

The topic author drafts or revises the narrative text summarizing the evidence found in the literature. American College of Radiology (ACR) staff draft an evidence table based on the analysis of the selected literature. These tables rate the strength of the evidence for all articles included in the narrative text.

The expert panel reviews the narrative text, evidence table, and the supporting literature for each of the topic-variant combinations and assigns an appropriateness rating for each procedure listed in the table. Each individual panel member forms his/her own opinion based on his/her interpretation of the available evidence.

More information about the evidence table development process can be found in the ACR Appropriateness Criteria® Evidence Table Development document (see the "Availability of Companion Documents" field).

Methods Used to Formulate the Recommendations

Expert Consensus (Delphi)

Description of Methods Used to Formulate the Recommendations

Modified Delphi Technique

The appropriateness ratings for each of the procedures included in the Appropriateness Criteria topics are determined using a modified Delphi methodology. A series of surveys are conducted to elicit each panelist's expert interpretation of the evidence, based on the available data, regarding the appropriateness of an imaging or therapeutic procedure for a specific clinical scenario. American College of Radiology (ACR) staff distributes surveys to the panelists along with the evidence table and narrative. Each panelist interprets the available evidence and rates each procedure. The surveys are completed by panelists without consulting other panelists. The ratings are a scale between 1 and 9, which is further divided into three categories: 1, 2, or 3 is defined as "usually not appropriate"; 4, 5, or 6 is defined as "may be appropriate"; and 7, 8, or 9 is defined as "usually appropriate." Each panel member assigns one rating for each procedure per survey round. The surveys are collected and the results are tabulated, de-identified and redistributed after each round. A maximum of three rounds are conducted. The modified Delphi technique enables each panelist to express individual interpretations of the evidence and his or her expert opinion without excessive bias from fellow panelists in a simple, standardized and economical process.

Consensus among the panel members must be achieved to determine the final rating for each procedure. Consensus is defined as eighty percent (80%) agreement within a rating category. The final rating is determined by the median of all the ratings once consensus has been reached. Up to three rating rounds are conducted to achieve consensus.

If consensus is not reached, the panel is convened by conference call. The strengths and weaknesses of each imaging procedure that has not reached consensus are discussed and a final rating is proposed. If the panelists on the call agree, the rating is accepted as the panel's consensus. The document is circulated to all the panelists to make the final determination. If consensus cannot be reached on the call or when the document is

circulated, "No consensus" appears in the rating column and the reasons for this decision are added to the comment sections.

Rating Scheme for the Strength of the Recommendations

Not applicable

Cost Analysis

A formal cost analysis was not performed and published cost analyses were not reviewed.

Method of Guideline Validation

Internal Peer Review

Description of Method of Guideline Validation

Criteria developed by the Expert Panels are reviewed by the American College of Radiology (ACR) Committee on Appropriateness Criteria.

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

The recommendations are based on analysis of the current literature and expert panel consensus.

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

Selection of appropriate radiologic imaging procedures for evaluation of hematospermia

Potential Harms

Computed tomography (CT) uses ionizing radiation.

Gadolinium-based Contrast Agents

Nephrogenic systemic fibrosis (NSF) is a disorder with a scleroderma-like presentation and a spectrum of manifestations that can range from limited clinical sequelae to fatality. It appears to be related to both underlying severe renal dysfunction and the administration of gadolinium-based contrast agents. It has occurred primarily in patients on dialysis, rarely in patients with very limited glomerular filtration rate (GFR) (i.e., <30 mL/min/1.73 m^2), and almost never in other patients. Although some controversy and lack of clarity remain, there is a consensus that it is advisable to avoid all gadolinium-based contrast agents in dialysis-dependent patients unless the possible benefits clearly outweigh the risk, and to limit the type and amount in patients with estimated GFR rates <30 mL/min/1.73 m^2. For more information, please see the American College of Radiology (ACR) Manual on Contrast Media (see the "Availability of Companion Documents" field).

Relative Radiation Level (RRL)

Potential adverse health effects associated with radiation exposure are an important factor to consider when selecting the appropriate imaging procedure. Because there is a wide range of radiation exposures associated with different diagnostic procedures, a relative radiation level indication has been included for each imaging examination. The RRLs are based on effective dose, which is a radiation dose quantity that is used to

estimate population total radiation risk associated with an imaging procedure. Patients in the pediatric age group are at inherently higher risk from exposure, both because of organ sensitivity and longer life expectancy (relevant to the long latency that appears to accompany radiation exposure). For these reasons, the RRL dose estimate ranges for pediatric examinations are lower as compared to those specified for adults. Additional information regarding radiation dose assessment for imaging examinations can be found in the ACR Appropriateness Criteria® Radiation Dose Assessment Introduction document (see the "Availability of Companion Documents" field).

Qualifying Statements

Qualifying Statements

The American College of Radiology (ACR) Committee on Appropriateness Criteria and its expert panels have developed criteria for determining appropriate imaging examinations for diagnosis and treatment of specified medical condition(s). These criteria are intended to guide radiologists, radiation oncologists, and referring physicians in making decisions regarding radiologic imaging and treatment. Generally, the complexity and severity of a patient's clinical condition should dictate the selection of appropriate imaging procedures or treatments. Only those examinations generally used for evaluation of the patient's condition are ranked. Other imaging studies necessary to evaluate other co-existent diseases or other medical consequences of this condition are not considered in this document. The availability of equipment or personnel may influence the selection of appropriate imaging procedures or treatments. Imaging techniques classified as investigational by the U.S. Food and Drug Administration (FDA) have not been considered in developing these criteria; however, study of new equipment and applications should be encouraged. The ultimate decision regarding the appropriateness of any specific radiologic examination or treatment must be made by the referring physician and radiologist in light of all the circumstances presented in an individual examination.

Implementation of the Guideline

Description of Implementation Strategy

An implementation strategy was not provided.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Getting Better

IOM Domain

Effectiveness

Identifying Information and Availability

Bibliographic Source(s)

Hosseinzadeh K, Remer EM, Leyendecker JR, Eberhardt SC, Friedman B, Fulgham PF, Goldfarb S, Hartman MS, Lazarus E, Lockhart ME, Majd M, Oto A, Porter C, Sudakoff GS, Verma S, Expert Panel on Urologic Imaging. ACR Appropriateness CriteriaÂ® hematospermia. [online publication]. Reston (VA): American College of Radiology (ACR); 2012. 6 p. [54 references]

Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

2010 (revised 2012)

Guideline Developer(s)

American College of Radiology - Medical Specialty Society

Source(s) of Funding

The American College of Radiology (ACR) provided the funding and the resources for these ACR Appropriateness Criteria®.

Guideline Committee

Committee on Appropriateness Criteria, Expert Panel on Urologic Imaging

Composition of Group That Authored the Guideline

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Financial Disclosures/Conflicts of Interest

Not stated

Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: Torigian DA, Ramchandani P, Casalino DD, Remer EM, Arellano RS, Baumgarten DA, Curry NS, Dighe M, Fulgham P, Israel GM, Leyendecker JR, Papanicolaou N, Prasad S, Expert Panel on Urologic Imaging. ACR Appropriateness Criteria® hematospermia. [online publication]. Reston (VA): American College of Radiology (ACR); 2010. 5 p.

Guideline Availability

Electronic copies: Available from the American College of Radiology (ACR) Web site .

Print copies: Available from the American College of Radiology, 1891 Preston White Drive, Reston, VA 20191. Telephone: (703) 648-8900.

Availability of Companion Documents

The following are available:

- ACR Appropriateness Criteria®. Overview. Reston (VA): American College of Radiology; 2 p. Electronic copies: Available in Portable

Document Format (PDF) from the American College of Radiology (ACR) Web site.

- ACR Appropriateness Criteria®. Literature search process. Reston (VA): American College of Radiology; 1 p. Electronic copies: Available in PDF from the ACR Web site.
- ACR Appropriateness Criteria®. Evidence table development – diagnostic studies. Reston (VA): American College of Radiology; 2013 Nov. 3 p. Electronic copies: Available in PDF from the ACR Web site.
- ACR Appropriateness Criteria®. Radiation dose assessment introduction. Reston (VA): American College of Radiology; 2 p. Electronic copies: Available in PDF) from the ACR Web site.
- ACR Appropriateness Criteria®. Manual on contrast media. Reston (VA): American College of Radiology; 90 p. Electronic copies: Available in PDF from the ACR Web site.
- ACR Appropriateness Criteria®. Procedure information. Reston (VA): American College of Radiology; 1 p. Electronic copies: Available in PDF from the ACR Web site.
- ACR Appropriateness Criteria® hematospermia. Evidence table. Reston (VA): American College of Radiology; 2012. 16 p. Electronic copies: Available from the ACR Web site.

Patient Resources

None available

NGC Status

This NGC summary was completed by ECRI Institute on September 8, 2011. This summary was updated by ECRI Institute on May 9, 2013.

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